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09/867,628	05/31/2001	Keiichi Takanashi	2001-0689A	7179

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EXAMINER

SONG, MATTHEW J

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 08/27/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/867,628

Applicant(s)

TAKANASHI ET AL.

Examiner

Matthew J Song

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-- Th MAILING DATE of this communication appears on th cover sh et with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Response to Arguments***

1. In view of the Appeal Brief filed on 6/13/2003, PROSECUTION IS HEREBY REOPENED.

New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the sixth paragraph of 35 U.S.C. 112:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

3. It is noted that Claims 7-14 recite a "means for"; therefore the claims are treated under the guidelines set forth by 35 U.S.C 112 sixth paragraph.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 7-10, 12 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The “means plus function” limitation recited in the claims is not supported by corresponding structure in the specification disclosure. A person skilled in the art would not know how to make and use the invention without a description of elements to perform the function, note MPEP 2185.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 7-10, 12 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The “means plus function” limitation recited in the claims is not supported by corresponding structure in the specification disclosure. It is unclear of the structure of the elements claimed because there is no teaching in the instant disclosure, note MPEP 2185.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 7-12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hofstetter et al (US 5,437,242).

Hofstetter et al. teaches an optical recording device (1) positioned outside the apparatus body (Fig 1) directed onto the surface of the melt (2) on which a reflection (4) caused by the rim (6), positioned on the inside of the apparatus (Fig 1), can be observed and functions as a mechanical reference mark, this reads on applicant's reference reflector. Hofstetter et al also teaches images from the optical recording device are sent to an image-processing device (7), which determines the distance of the rim to the melt surface, i.e. the level of the melt, taking into account the geometrical data of the reference mark, this reads on applicant's level position measuring means, and outputs a signal to a control device (8) that determines deviations from the desired distance and generates a control signal for the drive motor (10), which changes the vertical position of the crucible with the aid of the raising and lowering mechanism (13), this reads on applicant's lifting device, so that the melt level is controlled to a constant value. (col 5, ln 25-68 and Fig 1) Hofstetter also teaches the image data supplied by the optical recording device also to be used for the determination of the crystal diameter (col 4, ln 7-15), this reads on applicant's diameter measuring means.

The control device 8, which can by any known comparator, generates a control signal for the drive motor, this reads on applicant's lifting device, which changes the vertical position of the crucible. The examiner interprets the control device to read on applicant's level position controlling means comprising a crucible ascent speed calculating means because the instant

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disclosure does not teach the structure of the means; therefore the computer serving as the set point generator of the control device would be capable of performing calculations and is an equivalent structure to the crucible ascent speed calculating means, note Fuerhoff (US 5,882,402) below.

The examiner also interprets the control device (8) to read on applicant's limitation of crucible ascent speed adjustment value calculating means because the instant disclosure is silent to the structure of the crucible ascent speed adjustment value calculating means; therefore because the control device, which comprises a computer to determine deviations in melt level and generates a control signal to the drive motor to change the vertical position of the crucible would be capable of performing calculation and is an equivalent structure.

Also the control signal taught by Hofstetter reads on applicant's limitation of adjustment adding means because the drive motor adjusts the height of the crucible to the control signal.

The limitation of "said level position controlling means controls the level position of said crucible based on the ascent speed adjusted by the adjustment value when certain criteria are satisfied and said level position controlling means controls the level position of said crucible based on just the ascent speed when certain criteria are not satisfied" is view as intended use and Hofstetter et al teaches the structural limitation claimed by applicant and would be capable of performing the intended use. It is noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Also, claim 11 is also only further limiting by specifying the intended use of the optical device.

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Referring to claim 9, Hoffstetter et al teaches the control device 8 is a known comparator and the instant disclosure is silent to the structure of the adjustment value addition proprietary judging means; therefore because the control device compares data as the adjustment value addition proprietary judging means the control device is interpreted by the examiner to be an equivalent structure.

Referring to claim 10 and 14, the instant disclosure is silent to the structure of the averaging means. Hoffstetter et al teaches the control device 8 comprises a computer and a computer is well known in art of being capable of performing simple calculation, such as averaging data, note Fuerhoff (US 5,882,402) below. Therefore, the control device is interpreted, by the examiner, to be an equivalent structure to the claimed averaging means.

Referring to claim 12, the instant disclosure is silent to the structure of the automatic updating means. Hoffstetter et al teaches the control device 8 comprises a computer and a computer is well known in art of being capable of performing simple functions, such as automatic updating, note Fuerhoff (US 5,882,402).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffstetter et al (US 5,437,242) in view of LaBrie et al (US 6,030,451).

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Hoffstetter et al teaches all of the limitations of claim 13, as discussed previously, except the optical device comprises a first camera and a second camera.

In a method of controlling the diameter of an ingot, note entire reference, LaBrie et al teaches using dual optical cameras focused on diametrically opposed edges of the meniscus of a growing crystal and the growth parameters can be adjusted to maintain a constant diameter (Abstract). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hoffstetter et al with LaBrie et al's dual camera optical device to eliminate the negative effects of orbit, melt level and incorrect camera angles (col 3, ln 1-20).

### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Castonguay et al (US 3,980,438) teaches the melt volume decreases by an amount equal to the crystal volume increase and by establishing a desired crystal diameter and pulling rate and hence the rate of crystal volume increase, it is a simple matter to calculate the rate at which the melt level is to fall in a crucible (col 5, ln 1-20).

Fuerhoff (US 5,882,402) teaches a control unit **51** includes a programmed computer **77b** for use in controlling the crucible drive unit as a function of processed signals from a camera **53**. Also, a computer used for programming the crystal growth process automation (col 4, ln 50 to col 5, ln 67).



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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J Song whose telephone number is 703-305-4953. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 703-305-2667. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Matthew J Song  
Examiner  
Art Unit 1765

MJS

NADINE G. NORTON  
PRIMARY EXAMINER

